AMENDMENTS TO THE CLAIMS

Please amend Claim 12 as indicated below.

A complete listing of all claims is presented below with insertions underlined (e.g., insertion), and deletions struckthrough or in double brackets (e.g., ~~deletion~~ or [[deletion]]).

1. (Previously Presented) A detection system for use during drilling by irradiation of an interaction region of a structure with laser light, the structure comprising a first material and a reinforcing member embedded in the first material, the detection system comprising:

a focusing lens positioned to receive light emitted from the interaction region during drilling of the structure, the interaction region comprising a surface of the reinforcing member;

an optical fiber optically coupled to the focusing lens to receive light from the focusing lens; and

a spectrometer optically coupled to the optical fiber to receive light from the optical fiber, the spectrometer adapted for analysis of the light for indications of the reinforcing member within the interaction region, wherein the detection system is adapted to initiate cessation of drilling upon detecting the indications of the reinforcing member within the interaction region.

2. (Previously Presented) The detection system of Claim 1, wherein the first material comprises concrete and the reinforcing member comprises rebar.

3. (Original) The detection system of Claim 1, wherein the spectrometer comprises:

an optical grating adapted to separate the light into a spectrum of wavelengths; and

a light sensor optically coupled to the optical grating, the light sensor adapted to receive light in at least a portion of the spectrum and to generate a signal corresponding to an intensity of the received light.

4. (Original) The detection system of Claim 3, wherein the light sensor comprises a coupled-capacitance discharge camera system.

5. (Original) The detection system of Claim 1, further comprising at least one neutral density filter adapted to reduce the light received by the spectrometer.

6. (Original) The detection system of Claim 1, wherein the focusing lens is coaxial with the laser light impinging on the interaction region.

7. (Original) The detection system of Claim 1, wherein the focusing lens is off-axis with the laser light impinging on the interaction region.

8. (Previously Presented) A detection system for use during irradiation of an interaction region of a structure with laser light, the structure comprising embedded material, the detection system comprising:

a focusing lens positioned to receive light emitted from the interaction region;

an optical fiber optically coupled to the focusing lens to receive light from the focusing lens; and

a spectrometer optically coupled to the optical fiber to receive light from the optical fiber, the spectrometer adapted for analysis of the light for indications of the embedded material within the interaction region, wherein the structure comprises concrete and the embedded material comprises rebar, and the spectrometer is adapted to analyze light having wavelengths of approximately 592 nanometers for indications of rebar within the interaction region.

9. (Original) The detection system of Claim 8, wherein the spectrometer is further adapted to analyze light having wavelengths of approximately 588.5 nanometers and approximately 593 nanometers by calculating a ratio of twice the intensity of light at 592 nanometers divided by the sum of the intensities at 588.5 nanometers and at 593 nanometers.

10. (Original) The detection system of Claim 9, wherein the ratio being greater than or equal to one corresponds to rebar within the interaction region.

11. (Previously Presented) A detection system for use during drilling by irradiation of an interaction region of a structure with laser light, the structure comprising a first material and a reinforcing member embedded in the first material, the detection system comprising:

means for focusing light emitted from the interaction region during drilling of the structure, the interaction region comprising a surface of the reinforcing member;

means for separating the focused light into a spectrum of wavelengths; and

means for analyzing at least a portion of the spectrum for indications of the reinforcing member within the interaction region, wherein the detection system is adapted to initiate cessation of drilling upon detecting the indications of the reinforcing member within the interaction region.

12. (Currently Amended) A method of detecting a reinforcing member within a laser-irradiated interaction region of a structure comprising a first material and the reinforcing member embedded in the first material, the method comprising:

focusing light from the interaction region during drilling by laser irradiation of the structure, the interaction region comprising the reinforcing member, and the light including light from a surface of the reinforcing member, the surface exposed during drilling;

separating the light into a spectrum of wavelengths; ~~and~~

analyzing at least a portion of the spectrum for indications of the reinforcing member within the interaction region; and

selectively adjusting the drilling in response to the indications, thereby avoiding substantially damaging the reinforcing member.

13. (Previously Presented) The detection system of Claim 11, wherein the focusing means comprises a focusing lens.

14. (Previously Presented) The detection system of Claim 11, wherein the separating means comprises an optical grating.

15. (Previously Presented) The detection system of Claim 11, wherein the analyzing means comprises a spectrometer.

16. (Previously Presented) The detection system of Claim 11, wherein the first material comprises concrete and the reinforcing member comprises rebar.

17. (Previously Presented) The method of Claim 12, wherein the first material comprises concrete and the reinforcing member comprises rebar.

18. (Previously Presented) The method of Claim 12, wherein the portion of the spectrum comprises wavelengths of approximately 592 nanometers.